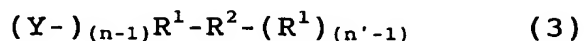


WHAT IS CLAIMED IS:

1. A method for producing a cross-coupling compound of formula (3):



5 wherein R^1 represents

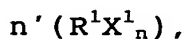
a substituted or unsubstituted, linear, branched, or cyclic hydrocarbon group, and

n and n' each represent 1 or 2,

provided that when n and n' are the same, both n and
10 n' are not 2,

R^2 represents a substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl or substituted or unsubstituted alkenyl group, and

Y represents R^2 or X^1 , wherein R^2 is as defined above,
15 and X^1 represents a chlorine, bromine or iodine atom, which method comprises reacting an organic halide of formula (1):



wherein R^1 is as defined above and carbon atoms at
20 the α and β positions relative to X^1 are sp^3 carbon atoms, and X^1 , n and n' are as defined above,

with a boron compound of formula (2):



wherein R^2 and n' are as defined above,

25 X^2 independently represents a hydroxyl group or an alkoxy or aryloxy group, or X^2_2 together form an alkylenedioxy or arylenedioxy group, and m represents 1 or 2, and $m \leq n$, and the boron atom is bonded with a

an alkoxyl group, or the alkoxy groups together form an alkylenedioxy group, or

X^2_2 represent $-O-B(R^{20})-O-B(R^{20})-O-$, wherein R^{20} represents the phenyl residue as defined in connection with formula (4) above,

r represents an integer of 0 to 4,

s represents 0 or 1, $r+s \leq 4$ when the benzene ring does not form a condensed aromatic ring,

R^6 groups are the same or different and each independently represent a substituted or unsubstituted aryl group,

a substituted or unsubstituted heteroaryl group, or

a substituted or unsubstituted linear or cyclic alkenyl group, or

R^6 groups connected with the adjacent carbon atoms of the benzene ring are bonded to form an ortho-condensed, or ortho and peri-condensed polycyclic aromatic ring.

4. A method according to any one of claims 1 to 3, wherein the nickel compound is a nickel salt or a π complex compound of zero-valent or divalent nickel.

5. A catalyst comprising a nickel compound and the compound of formula (i) as defined in claim 1.

6. A catalyst according to Claim 5, wherein the nickel compound is a nickel salt or a π complex compound of zero-valent or divalent nickel.